WHAT IS CLAIMED IS:

	1	1. An isolated nucleic acid encoding a CNG3B subunit of a cation			
	2	channel, the polypeptide:			
	3	(i) forming, with at least one additional alpha subunit, a cation			
	4	channel having the characteristic of cyclic nucleotide-gating; and			
	5	(ii) comprising a subsequence having at least 85% amino acid			
	6	sequence identity to amino acids 210 to 661 of SEQ ID NO:1.			
		2. The nucleic acid of claim 1, wherein the polypeptide specifically			
	1				
	2	binds to antibodies generated against a polypeptide comprising an amino acid sequence of			
uz z	3	SEQ ID NO:1.			
some street green system spirit spirits, ser green. Ande streeth Third Thomas Home Shirle through the Th Thomas Thomas Shirle spirits would shirle the Health	1	3. The nucleic acid of claim 1, wherein the nucleic acid encodes a			
	2	polypeptide comprising an amino acid sequence of SEQ ID NO:1.			
And Same	1	4. The nucleic acid of claim 1, wherein the nucleic acid comprises a			
	2	nucleotide sequence of SEQ ID NO:2 or SEQ ID NO:3.			
upen doug vy vann ands one, su H H Hading H Here I H H" upp H H H" and Hub	1	5. The nucleic acid of claim 1, wherein the nucleic acid is amplified			
	2	by primers that selectively hybridize under stringent hybridization conditions to the same			
dough and the state of the stat	3	sequence as the primers selected from the group consisting of:			
ļ.,	4	TCTATCTCCTGTGGCTCTTGCTTGTC (SEQ ID NO:4)			
	5	GAGTCTGGGCTGGATAAATAGCATATC (SEQ ID NO:5)			
	6	AGGAATTGGCACTACTAGATGGGTG (SEQ ID NO:6)			
	7	TTCATGAGGATCCTTTCAGAATCTGG (SEQ ID NO:7)			
	8	GGAAACCGTCGAACTGCCAATGTGGT (SEQ ID NO:8)			
	9	CGGGTTTGCCAATCTTTTAACTCTAGAC (SEQ ID NO:9)			
	10	GTCCGCAATAAGCCAGTAGTGTATG (SEQ ID NO:10)			
	11	TGACAAGCTTCCGCCATGTTTAAATCGCTGACAAAAGTC (SEQ			
	12	ID NO:11) and			
	13	TGACGAATTCTCCCAGCATGTCGTTTCCCCTCGTTAA (SEQ ID			
	14	NO:12), wherein the amplification reaction comprises forty cycles comprising a			
		denaturation phase of 95°C for fifteen seconds, an annealing phase of 58°C for fifteen			
	15				
	16	seconds, and an extension phase of 72°C for 2.5 minutes.			

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1	6. The nucleic acid of claim 1, wherein the polypeptide comprises a			
2	beta subunit of a heteromeric cyclic nucleotide gated cation channel.			
1	7. The nucleic acid of claim 1, wherein the nucleic acid specifically			
2	hybridizes under moderately stringent hybridization conditions to a nucleic acid			
3	comprising a nucleotide sequence of SEQ ID NO:2 or SEQ ID NO:3, wherein the			
4	hybridization reaction is incubated overnight at 37°C in a solution comprising 40%			
5	formamide, 1 M NaCl and 1% SDS, and washed at 45°C in a solution comprising 1x			
6	SSC.			
1	8. An isolated nucleic acid encoding a CNG3B subunit of a cation			
2	channel, the nucleic acid specifically hybridizing under stringent conditions to a nucleic			
3	acid comprising a nucleotide sequence of SEQ ID NO:2 or SEQ ID NO:3, wherein the			
4	hybridization reaction is incubated overnight at 42°C in a solution comprising 50%			
5	formamide, 5x SSC and 1% SDS, and washed at 65°C in a solution comprising 0.2x SSC			
1	9. An isolated nucleic acid that specifically hybridizes under stringer			
2	conditions to a nucleic acid encoding an amino acid sequence of SEQ ID NO:1, wherein			
3	the hybridization reaction is incubated overnight at 42°C in a solution comprising 50%			
4	formamide, 5x SSC and 1% SDS, and washed at 65°C in a solution comprising 0.2x SSC			
1	10. A method of detecting a nucleic acid, the method comprising			
2	contacting the nucleic acid with an isolated nucleic acid of claim 1.			
1	11. An isolated polypeptide comprising a CNG3B subunit of a cation			
2	channel, the polypeptide:			
3	(i) forming, with at least one additional alpha subunit, a cation			
4	channel having the characteristic of cyclic nucleotide-gating; and			
5	(ii) comprising a subsequence having at least 85% amino acid			
6	sequence identity to amino acids 210 to 661 of SEQ ID NO:1.			
1	12. The polypeptide of claim 11, wherein the polypeptide specifically			
2	binds to antibodies generated against SEQ ID NO:1.			
1	13. The polypeptide of claim 11, wherein the polypeptide has a			

molecular weight of between about 87 kD to about 97 kD.

	1		14.	The polypeptide of claim 11, wherein the polypeptide has an animo	
	2	acid sequence of SEQ ID NO:1.			
				The state of the s	
	1		15.	The polypeptide of claim 11, wherein the polypeptide comprises a	
	2	beta subunit o	f a hete	romeric cyclic nucleotide-gated cation channel.	
	1		16.	An antibody that specifically binds to the CNG3B polypeptide of	
	2	claim 11.	200		
	2	Ciaini II.			
	1		17.	The antibody of claim 16, wherein the polypeptide to which the	
	2	antibody bind	s has an	amino acid sequence of SEQ ID NO:1.	
* 1					
	1		18.	An expression vector comprising the nucleic acid of claim 1.	
Treel anoth Singl' Then these Third There's Si	1		19.	A host cell transfected with the vector of claim 18.	
			17.	**************************************	
Series Series	1		20.	A method for identifying a compound that increases or decreases	
turi,	2	ion flux through a cation channel, the method comprising the steps of:			
24	3		(i) con	ntacting the compound with a CNG3B polypeptide subunit, the	
H. Amp at a stranditum	4	polypeptide			
	5			(a) forming, with at least one additional alpha subunit, a cation	
- 7 - 1	6	channel having the characteristic of cyclic nucleotide-gating; and			
	7			(b) comprising a subsequence having at least 85% amino acid	
	8	sequence identity to amino acids 210 to 661 of SEQ ID NO:1; and			
	9	(ii) determining the functional effect of the compound upon the cation			
	10	channel.	(11) 000		
	10	chamici.			
	1		21.	The method of claim 20, wherein the functional effect is a physical	
	2	effect.			
	1		22.	The method of claim 20, wherein the functional effect is a chemical	
	2	effect.			
	1		23.	The method of claim 20, wherein the polypeptide is expressed in a	
	2	aukarvotio ko		or cell membrane.	
	2	eukaryone ne	ost CEII (of cell memorane.	

	1	24. The method of claim 23, wherein the functional effect is			
	2	determined by measuring ion flux, changes in ion concentrations, changes in current or			
	3	changes in voltage.			
	1	25. The method of claim 20, wherein the functional effect is			
	1				
th of which of the factor of the formal their factor than their factor of the factor o	2	determined by measuring ligand binding to the channel.			
	1	26. The method of claim 20, wherein the polypeptide is recombinant.			
	1	27. The method of claim 20, wherein the cation channel is heteromeric.			
	1	28. The method of claim 20, wherein the polypeptide is human			
	2	CNG3B.			
	1	29. The method of claim 20, wherein the polypeptide has an amino			
	2	acid sequence of SEQ ID NO:1.			
had then					
kres 18 15	1	30. A method for identifying a compound that increases or decreases			
	2	ion flux through a cyclic nucleotide-gated cation channel comprising a CNG3B			
p (s	3	polypeptide, the method comprising the steps of:			
	4	(i) entering into a computer system an amino acid sequence of at least 35			
e i:	5	amino acids of a CNG3B polypeptide or at least 105 nucleotides of a nucleic acid			
	6	encoding the CNG3B polypeptide, the CNG3B polypeptide comprising a subsequence			
	7	having at least 85% amino acid sequence identity to amino acids 210 to 661 of SEQ ID			
	8	NO:1;			
	9	(ii) generating a three-dimensional structure of the polypeptide encoded			
	10	by the amino acid sequence;			
	11	(iii) generating a three-dimensional structure of the compound; and			
	12	(iv) comparing the three-dimensional structures of the polypeptide and			
	13	the compound to determine whether or not the compound binds to the polypeptide.			
	1	31. A method of modulating ion flux through a CNG cation channel			
	2	comprising a CNG3B subunit to treat a disease in a subject, the method comprising the			
	3	step of administering to the subject a therapeutically effective amount of a compound			
	4	identified using the method of claim 20 or 30.			

	1	32.	A method of detecting the presence of CNG3B in human tissue, the	
	2	method comprising the steps of:		
	3		(i) isolating a biological sample;	
	4		(ii) contacting the biological sample with a CNG3B-specific	
	5	reagent that selectively associates with CNG3B; and,		
	6		(iii) detecting the level of CNG3B-specific reagent that selectively	
	7	associates with the sample.		
	1	33.	The method of claim 32, wherein the CNG3B-specific reagent is	
Spring Sing.	2	selected from the group consisting of: CNG3B-specific antibodies, CNG3B-specific		
	3	oligonucleotide prim	ers, and CNG3B-nucleic acid probes.	
	1	34.	In a computer system, a method of screening for mutations of a	
their than their tend trust than their their their	2	human CNG3B gene	e, the method comprising the steps of:	
Top one	3		(i) entering into the computer a first nucleic acid sequence	
That That	4	encoding a CNG3B polypeptide having a nucleotide sequence of SEQ ID NO:2 or SEQ		
W. Stade of St. William Bulk.	5	ID NO:3, and conservatively modified versions thereof;		
	6		(ii) comparing the first nucleic acid sequence with a second nucleic	
	7	acid sequence having substantial identity to the first nucleic acid sequence; and		
i É	8		(iii) identifying nucleotide differences between the first and second	
	9	nucleic acid sequenc	es.	
	10	35.	The method of claim 34, wherein the second nucleic acid sequence	
		is associated with a c	lisease state.	